MUSEUM STORIES

FOR

CHILDREN

SERIES VII

NUMBER ONE

OCTOBER 1, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN

CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

Field Museum welcomes you to the autumn entertainments, which are now being given under the provisions of the Raymond Fund, and hopes that the programs wi'l be both beneficial and pleasing to you.

D. C. DAVIES, Director

ROCKY MOUNTAIN GOATS AND SHEEP

Have you ever seen mountains with snow on their peaks all the time, even in summer? A great chain of such snow-capped mountains extends from the United States through Canada into Alaska; and many of them are so steep that few people venture to climb very far. Even wild animals seldom reach the top. Wild goats are the only animals in North America which live all year among the snowy peaks and ridges of the Rocky Mountains. Here they are practically safe from enemies; for few bears, wolves or mountain lions take the risk of slipping on the icy rocks. Even Indians prefer to hunt on lower mountain slopes unless game is scarce. Except for an occasional eagle or daring hunter, these wild creatures are seldom troubled; and thus the mountain goat lives almost without fear.

At a distance the animal seems more like a huge snow-ball than a mountain goat. At closer range it appears like a pigmy bison or buffalo, with snow-white shaggy coat. It carries its head below the great hump on its shoulders, and looks stupid and comical as it stands on the edge of a cliff staring down at us. Shaggy hair covers its short legs like knee-breeches; and when it walks it resembles a mechanical toy. Even the baby has a beard under the chin of its long narrow face; and above its bulging eyes it has straight black horns. Those of a full-grown mountain goat are slender and sharp, although they are only nine or ten inches long. Just behind the horns are queer bumps of tough black skin, called "scent" glands.

In spite of their clumsy appearance, mountain goats are sure-footed; and they are excellent climbers. They clamber up rocks tilted almost straight up; and sometimes they appear to walk across the face of a blank wall of rock; for the ledges are too narrow to be seen at any distance. On the outside, their hoofs are very hard; but underneath the outer skin is a soft springy layer, like a rubber ball. Just above the hoofs are small black "dew claws" which probably act as brakes when the animals slide down steep rocks. Mountain goat tracks in the snow look somewhat like the letter V.

Perhaps you wonder what these creatures find to eat so high on the mountains. Much of their food consists of various kinds of moss which grow in patches among the rocks. Sometimes they eat buds and twigs of small mountain shrubs; and once in a while they come down into the forests and mountain valleys to nibble at leaves and grass. Mountain goats always manage to find enough food to keep themselves strong and fat both in summer and in winter.

Wild sheep sometimes live on the same mountain as the goats; but they seldom climb as high nor stay as long in one region. Mountain sheep are often seen in flocks; and one of them sometimes stands alone on top of a rock, like a sentinel on guard. If it sees you, it may warn the others and the whole flock will bound away and disappear like magic behind the rocks. Their long slender legs carry the heavy bodies with great speed.

Some mountain sheep are white; but most of them have coats so near the color of the rocks that it is hard to see the animals unless they are moving. Their hair is thick and warm, yet not at all shaggy. Sometimes in summer it becomes stained reddish-brown from the earth. The tail of a wild sheep is so short that it seems to have none at all. Every wild sheep has horns; and those of some mountain sheep are so large that the animal is called "Bighorn". The horns of full-grown rams describe almost a circle; but those of ewes and lambs are short and slightly curving.

Mountain sheep feed on the grassy slopes and open spaces near the forests. Like many other grass eaters, they have no upper front teeth; but the lower teeth bite against the hard toothless gums. It is said that they seldom drink water even when there is plenty of it about them. Instead, they have been seen to eat snow in order to quench their thirst. Mountain sheep like the goats, keep well-fed and active all year.

Mountain sheep and goats do not look or act like one another; and yet they belong to the same animal family. That is because they both have horns which do not branch or fall off; and hoofs which are divided. They are part of the cattle family; but each has a special scientific name. That of the mountain goat is not well known; but the name for mountain sheep you have probably heard. They are all called *Ovis*, although the North American sheep are somewhat different from sheep in other parts of the world.

At the entrance to Hall 16 are exhibits of these mountain animals. In the mountain goat case, notice especially a peculiar orange-colored moss which serves as part of the goats food. In the mountain sheep case, see how large the horns of the sentinel ram are, compared to those of the other sheep.

MARGARET FISHER, Guide-lecturer

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MUSEUM STORIES FOR CHILDREN

SERIES VII

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OCTOBER 1, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN

CHICAGO

MUSEUM STORIES FOR CHILDREN

SERIES VII
NUMBER TWO
OCTOBER 8, 1927

FIELD MUSEUM OF NATURAL HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

One of the films for today shows the work of the silversmith; and the story tells you about silver-working in many parts of the world. If you hunt in the Museum Halls which are mentioned in the story, you will find much fine silver-work and many pieces of silver ore.

D. C. DAVIES, Director

THE USE OF SILVER AMONG THE PEOPLES OF THE WORLD.

Since ancient times people have admired and treasured precious metals; and gold and silver have always been favorites. One is like the sun; and the other shines like the moon. Silver may be called the Queen of Metals. Since men value it so much, it is fortunate that this metal can be found in many places over the world. Most of it is dug out of the mines as ore and must be separated from rock and other minerals before it can be used as silver. You can see a great many pieces of silver ore at the east end of Frederick J. V. Skiff Hall (Hall 37). Look in the same hall for the small model of a blast furnace in which silver is separated from the rest of the ore. The "bullion", or raw silver, may be taken to a mint and turned into silver dollars and other coins, or it may be bought by a silversmith and made into jewelry and other ornamental objects.

Silversmiths have fashioned ornaments for kings and common people during many centuries. Long before the days of Abraham, there were metal workers among the ancient Sumerians of Mesopotamia. Recently the ruins of some of their cities were uncovered; and a number of ornaments brought to the Museum. If you look in a case on the east side of Stanley Field Hall, you will find small bracelets and rings made over five thousand years ago. Some of them are the work of silversmiths.

Other buried treasure was found in the ruins of Pompeii, a city of ancient Italy destroyed by the volcano Vesuvius in 79 A.D. If you look in Edward E. Ayer Hall (Hall 2) near the center, you will find a number of objects uncovered from the ruins. One of these is a silver pitcher found in a suburb of Pompeii. Some wealthy Roman families had complete sets of dishes made of silver. You can see a collection of plates, dishes, cups and spoons brought from Rome, in the same case with some of the objects from the ruins of Pompeii. Notice that the whole set is made of silver.

Both ancient and modern silversmiths of eastern Asia rival the Greeks and Romans in making beautiful jewelry. Years ago, in China, it became fashionable to wear the fingernails long and protect them with fancy silver finger-stalls. Silver ornaments or "chatelaines", consisting of toothpick, tweezers, ear-spoon, brush for oiling hair, and boar's tooth for parting hair, were worn in public, fastened to the robe. Other favorite ornaments were silver rings, ear pendants and elaborate pins. Among the most beautiful were long silver hair-pins decorated with blue kingfisher feathers or colored enamel work. At present silver ornaments are admired as in former days. A number of ornaments made by Chinese silversmiths are on exhibit among the Blackstone collections in Hall 24. Some of them were made and worn in the days when China was an empire.

The Tibetans, another Asiatic people, also excel in making jewelry. They use silver settings for turquois and other colored stones; and make many necklaces, bracelets, and even silver charm boxes. You can see a large collection of Tibetan jewelry near the north end of Hall 32.

The metal workers of India have long been famous for their artistic productions. According to custom they make gold jewelry for the nobility and silver for the ordinary people. Little children wear a great deal of jewelry, especially if their parents happen to be wealthy. In India, as in other parts of Asia, much of the wealth is kept in the form of jewelry instead of coins. There are two cases of gold jewelry and one of silver ornaments from India in H. N. Higinbotham Hall (Hall 31). Look especially for the large silver anklets.

America as well as Asia had metal workers long ago. The Spanish conquerors found the Aztecs and the Incas using dishes and decorations of gold and silver. Sometimes the Indians took thin sheets of metal and beat them on carved stones to make a raised design. Sometimes they made molds and cast the metal into hollow or solid shapes; and often they fastened or soldered fine wires on top of other pieces. Next to the silver jewelry from India in H. N. Higinbotham Hall is a case of ancient American Indian ornaments. In one corner of the case you will see some pieces of beaten silver. Try to find the design of a bird. In Hall 9 you will find some small silver models of llamas, made by the Incas of Peru.

Unlike their southern relatives, the North Americans Indian did not work in silver until after the white men came. Then they traded for silver and began to make fancy pins and bracelets. It soon became the fashion among the eastern Indians to decorate shirts and dresses with large silver disks, sometimes called brooches. Although the Indians copied the pattern of the brooches from the traders, many of the designs are their own. You can find some of these ornaments among the collections of the Sauk and Fox and the Potawatomi Indians, near the entrance to James Nelson and Anna Louise Raymond Hall (Hall 4). Look for the odd pin fastened at the center of the disks.

At present much of our silverware and jewelry is made by machinery; but the finest work is always done by hand.

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FIELD MUSEUM OF NATURAL HISTORY
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MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER THREE

OCTOBER 15, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

In the course of the next few months, a new collection of exhibits from Borneo will be opened on the ground floor of the Museum. There you will be able to see things which once belonged to the Dyaks. Animals from Borneo are now to be found in Halls 15 and 22.

D. C. DAVIES, Director

THE DYAKS.

The Dyaks are neither white, black or yellow. They are brown, like all the rest of their race of South Sea Island people. They have dark, wavy hair, more like the hair of the white race than like that of any other. But unlike the whites, the Dyak men have no beards. Explorers who go to visit the Dyaks are always impressed by their fine, gentle qualities. We call them savages, but most of the explorers agree that they are more generous and kindly and honest than our own white race. In Dyak villages the houses are never locked. It would never occur to a Dyak to take something that does not belong to him.

It is warm in Borneo, so the Dyaks do not have to wear much clothing. The men commonly wear only a loin-cloth and the women a simple skirt, with or without a jacket. It is not because they lack either materials or the desire for decorating their bodies, that the Dyaks do with so little covering. They are fond of decorations. Men and women both wear all sorts of beads, bracelets and other ornaments. Some of them delight in wearing so many heavy rings in their ears that the lobe becomes stretched into long strings, like macaroni, which in some cases can be wound twice around the ear. And as for materials for clothing, the Dyaks have the advantage of us. Their cloth grows on trees. That is not to say that Maizok can go out and pick a new shirt off a tree, like you pick apples. What is true, however, is that nature provides cloth ready woven. Our clothing takes a long time on its way from the sheep's back to ours. But the Dyaks know of a certain tree whose inner bark makes cloth good enough for everyday wear. The inner bark of this tree after being stripped off, must be wet and pounded for a long time until it becomes flattened to the thickness of cloth. The strange thing about it is that after all the pounding and rough treatment they get, the fibers of the bark hang together, giving the finished product the properties of woven cloth.

Borneo has many kinds of monkeys, ranging all the way from little ones no bigger than a cat to the big proboscis or long-nosed monkey and the great ape of Borneo, known as the orang-utan. The Dyaks have no scruples about eating monkeys, even though they recognize their apparent similarity. Indeed, the Dyaks pay tribute to the orang-utans by giving them the name of "men of the woods". That is what orang-utan means, literally. The Dyaks refer to themselves, too, as "orang". For instance, certain hill tribes are known as "orang gunong", meaning "men of the hills".

It is strange that with the excellent examples of the monkeys all around them, the Dyaks do not climb trees monkey-fashion. Instead they have developed their own artificial method of climbing which reminds us of the way the linemen of the telephone company do it. Palm trees shoot up straight for perhaps fifty feet or more without putting forth any foliage. Fifty feet is a long shinny; and not only that, there is danger of doing a lot of damage to one's shins. So the Dyak overcomes these inconveniences by tying his feet together with a length of cloth. The cloth takes the punishment that his legs would otherwise take, and also serves to brace him in position.

Among Maizok's people, fishing is a big social affair. Not only the whole family, but the whole village turns out for a fishing trip. Let us go along and find out how they manage to catch anything with so many noisy people around.

But before we start the Dyaks must perform a ceremony to determine whether the trip will be successful or not. This is done in somewhat the same way that boys decide which team will bat first by measuring the bat with their fists. After all preparations are made for the trip, some important member of the tribe brings forth a strip of rattan and a stick of wood. The rattan is looped around the wood and pulled vigorously back and forth. This method, you recognize, is like that used by Boy Scouts in making fire by friction. If fire results, the fishing is begun; if not, they must postpone the trip.

On this occasion let us say that they have succeeded and so begin to fish. For two days previous everybody has been busy gathering the roots of a certain vine called the tuba. Large piles of roots are seen on the banks of the river. Across the stream are built two structures of sticks. One is a weir,—a sort of fence made of woven sticks. This has been put up to keep the fish from getting away. The other structure, placed at a distance up stream, is a rude bridge across which has been laid a long trough-like log.

Now the tuba roots are placed on a log and everybody seizes a stick and begins to beat the roots. The hollowed log makes their blows resound, and there is much additional noise of shouting and singing. Next, the beaten roots are dumped into the river. The juice which has been crushed out of them is a poison. It forms a thick foam on the surface of the water, making it look as if it were covered with snow. By this time the people are in the water, yelling, splashing and diving after the drugged and sluggish fish. All the fish that escape the spears and hands of the excited Dyaks are soon overcome by the poison and float down stream until they are caught by the weir. When it is all over, the Dyaks dress and dry their catch, and then load their boats and paddle back home.

EDMUND COOKE, Guide-lecturer

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CHICAGO

MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER FOUR

OCTOBER 22, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

One of the films today shows you sponge-fishing; and the story tells you about these strange animals and some of their relatives. Sponges, sea whips, sea urchins, corals, and other marine animals are to be seen in the east half of Hall 19.

D. C. DAVIES, Director

SPONGES AND THEIR RELATIVES.

If you ride on a boat that has a glass window in the bottom of it, you can look down into the water and see many strange creatures and plants. Of course you notice a great many fishes swimming about, probably in search of food. If the water is not too deep, you may see some lobsters, crabs and shell-fish lying on the sandy bottom or moving among the rocks. Your boat may reach waters in which the star-fish and sea urchins live and jelly-fish float like tiny opened umbrellas.

Among all of these strange creatures, there are some that seem like flowers growing under water, with stalk or root fixed to some solid object. You may be looking at sea lilies and sea anemones; and many of the plant-like creatures you notice may be sponges. Perhaps you think that all these animals are plants because they do not swim or crawl like other water animals. Some of them do not seem to eat or breathe; and yet they remain alive and grow large. Scientists watch these creatures through magnifying glasses and find that they really do eat and breathe and act much like other animals even though they are rooted to one place during the greater part of their lives.

Let us watch a sponge and see how that strange water animal carries on its life. A young sponge may develop in one of two ways. It may grow as a small bud on a large rooted sponge; and then break off, settle on some solid object and remain attached during the rest of its life-time. The small budding sponge is much like the larger one; and continues to grow until it reaches the size of the original sponge.

A young sponge may develop in a more complicated manner than by budding. It may begin as a bit of matter protected by the parent sponge until it develops swimming paddles. These are long hair-like "flagella" extending from the round body; and are used to whip the water into motion. After the tiny creature swims away from the full-grown sponge, it changes from its rounded form to cup-shape. In a short time a kind of outer skin begins to cover the flagella. The young sponge, now unable to swim, attaches itself by the rim of the "cup" to a solid object. There it remains; and develops typical sponge habits, absorbing food and oxygen from the water which circulates through its body. In four or five years it is as large as the original parent sponge.

A sponge is indeed an odd creature, with no head or legs and not even a backbone. It has a solid fleshy body, with small pores all over the outside and a larger pore near the top of the sponge. The small pores are the mouths of hollow tubes which lead in to the center of the body; and the large pore at the top is the end of the "stomach" or internal cavity.

It is hard to believe the sponge is really alive until you see it spouting water from its "eye", as the fishermen call the large pore. If you could see inside the sponge you would be astonished by its activity. Water enters the sponge body through the small pores. The hair-like flagella which once helped the baby sponge to swim are now turned toward the inside; and each waves regularly. Together the flagella beat the water into whirlpools and then force it out of the sponge. Bits of living matter and oxygen in the water are absorbed during this circulation from small pores to large; and thus the sponge lives and grows.

Sponges are found in all the seas of the world and even in some of the lakes. Some of them grow best in shallow water and others live so far under the surface that only deep sea divers can find them. Sometimes they grow together in colonies; and it is almost impossible to separate individual sponges. They range from a pin-head in size to the height of a man; but most of them are about the size of a large cake. Yellowish-brown is the favorite color; but practically every shade of the rainbow can be found.

Sponges take such interesting shapes that people name them for resemblance to familiar objects. Many of them resemble vases; and one beautiful white sponge is called Venus's flower basket. A number of sponges take the shape of cups; and one immense sponge is called Neptune's goblet. Sponges that grow in deep water often develop long branch-like "fingers".

A sponge can live for a long time; and it does not always die even when it is cut in two. People who sell sponges sometimes catch a full-grown living sponge, cut pieces from it and throw them all back into the water. The original sponge will continue to live; and each cut piece will grow larger and in a few years there will be several full-size sponges instead of one. Since a sponge is a water animal it will die if it is allowed to become thoroughly dry. The soft fleshy parts which caused the living sponge to feel slimy, gradually disappear and the skin shrivels and falls off. All that is left of the sponge is the skeleton. Some sponge skeletons are hard like flint or stone and are never used for the market. The soft and horny skeletons, however, are sold for bath sponges, desk sponges and other purposes. The skeleton of a sponge resembles the living animal more than do the skeletons of most other animals.

MARGARET FISHER, Guide-lecturer.

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MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER FIVE

OCTOBER 29, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

Gorillas are to be seen in three different parts of the Museum. You will find one in Hall 15, along with other members of the Primate group. The skeleton of another is at the east end of Hall 17; and a group of gorillas may be seen in the Carl E. Akeley Memorial Hall.

D. C. DAVIES, Director

THE GORILLA.

It is remarkable that until recent times less was known about the gorilla than about almost any other big mammal of the world. This, in spite of the fact that the gorilla is of great interest to people because of the similarity he bears to man. Even today, little is known of the intimate life of gorillas.

There are reasons for this state of affairs. Among them are the facts that the gorilla lives in the most inaccessible part of Africa, in the deepest jungles; that he is a very shy animal which does not appreciate man's company; that he seldom lives for more than a few months in captivity; and lastly, that he has long been under the shadow of a reputation for ferocity which may have served to make people timid about interviewing him in his own back yard.

Now it must be admitted that a full-grown male gorilla does not look like an angel of love and gentleness. Any animal of equal size and strength is to be respected by such a puny creature as man. But the opinion of late explorers and hunters is that the gorilla is a huge, man-like beast, capable of great fury when defending its life, but ordinarily much more harmless than man. At least it is a fact that the gorilla never eats animal food and so has never learned to kill for a living. It is equally true that in the country in which the gorilla lives there are no beasts of prey strong enough to threaten him. Consequently the gorilla seldom has to fight to protect himself.

So, sifting what we know about the gorilla's behavior, it seems that the chief basis for man's fear is the gorilla's size. And that, alone, is a poor reason. A deer is a big animal, too, but we do not fear it. For we have learned that when a deer is frightened by a man, it runs away. But the gorilla is no runner. In the same situation he can only stand his ground and make use of the strength he has to protect himself. It is true, men have been killed by gorillas. But it is not known that a gorilla ever went out of his way to do it.

Let Tunney call himself the heavyweight champion of the world; old John L. Gorilla is heavyweight champion of the primates,—which is a larger sphere, including the world of monkeys, apes, and men, too. One gorilla measured by the hunter who killed him was 5 feet 7½ inches tall—only an average height among men. But he weighed 360 pounds, which is about twice the average weight of man. And his measurement about the chest (unexpanded) was 5 feet, 2 inches, or about equal to the same measurement made upon two ordinary men standing back to back. It is probably safe to say that Tunney and Dempsey rolled into one would be no match for a big male gorilla.

Unlike his monkey and ape relatives, the gorilla is not a tree-dweller. Probably at one time in the history of his kind, he did live in trees. His long arms and grasping feet are evidence that he was once fitted for the same life as his more arboreal cousin, the chimpanzee. But the interesting thing about the gorilla is that he has lost his fitness for tree-life. He climbs laboriously and rather clumsily. His feet seem to have lost some of their original hand-like character. His big toe is less like a thumb than is the big toe of monkeys. And he has a cushion-heel making his foot more useful for walking than for climbing.

The gorilla still walks on all fours, although he comes nearer to being a biped than any other ape except the gibbon. When he walks he places his hands on the ground with the fingers bent in so that he rests on his knuckles. Then he half-walks, half-swings his body forward between his arms. He progresses, in this way, somewhat like a man walking on crutches which are too short. His back is bent forward at an angle of about 45 degrees. Other four-footed animals walk with their backs horizontal. Thus the gorilla, in point of posture, is half way between the lower mammals and man.

A few years ago a man and woman in England obtained a young, half-grown gorilla and trained him to live in their house along with the family. They called him John Daniel and he became famous as the first gorilla to be kept under such close observation.

John Daniel proved to be more like a two-year-old child than a ferocious wild beast. He loved to be petted and played with. When punished for being naughty, he would cry just like a man-child. At night he simply could not bear to be left alone.

One time, John's mistress had her best dress on. John wanted to climb into her lap and be petted, but was not allowed to for fear he would soil her dress. For a moment he whimpered and sulked a little. Then he brightened, seized a newspaper, put it over his mistress' knees, and climbed triumphantly upon the desired lap.

John had his own bedroom and bed. He learned to tuck himself in at night and to behave, in general, like a well-bred little boy. The thing he loved best to do was to climb upon the bedstead and then tumble, head over heels, upon the mattress. And if that is a mark of the beast, then all of us know a lot of apes masquerading as boys and girls.

EDMUND COOKE, Guide-lecturer.

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Gorillas are to be seen in three different parts of the Museum. You will find one in Hall 15, along with other members of the Primate group. The skeleton of another is at the east end of Hall 17; and a group of gorillas may be seen in the Carl E. Akeley Memorial Hall.

D. C. DAVIES, Director

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MUSEUM STORIES FOR CHILDREN

SERIES VII
NUMBER FIVE
OCTOBER 29, 1927

FIELD MUSEUM OF NATURAL HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER SIX

NOVEMBER 5, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

One of this morning's films is about the American bison. There is a group of these animals, arranged as they might have appeared to a traveller across the plains in the last century, on exhibit in Hall 16. Articles which the Indians made from buffalo hides and horns may be found in Hall 15.

D. C. DAVIES, Director

THE STORY OF A BUFFALO

Nosib was an American bison, as you might have guessed if you had tried spelling his name backwards. At the time we speak of Nosib was newly born. This was in April, 1870. His mother had left the herd when it came time for Nosib to be born and had found a sheltered place at the head of a narrow stream, tributary to the Mississippi. Nosib was born on a bed of grass under an overhanging bank. For several hours he could not stand up. He lay there on the grass while his mother stood guard over him and, from time to time, licked him lovingly. After a few days he could walk well enough to follow his mother back to the herd.

For days the bison had been travelling north on the way from their winter to their summer range. Nosib did not know it, but his own mother had started this great herd of buffalo on its northward journey. One day before he was born she had been feeding with a small band in a side valley of the Arkansas River. The air smelled like spring that day, and the grass looked a little greener on the bottoms. She was an old cow and knew what that meant. She was also the leader of her small herd, for, you must know, among the buffalo an experienced old cow is always leader. So when Nosib's mother turned her head north that day the others followed. As they migrated north they were joined by other similar bands. The farther they went the larger the herd grew. It grew as a rolling snowball grows. By the time Nosib was born it was a hundred thousand strong. And this herd was only one of many, just as large, moving in the same direction throughout the whole range of the buffalo in America. All told there were then about six million buffaloes ranging the plains west of the Mississippi from the gulf states far up into Canada. Originally their range covered a third of the continent and their number is thought to have been between thirty and sixty million. But that was a long time ago, before the white man came and before the Indians had horses to hunt with. These were evil times for the buffaloes. The first trans-continental railroad had recently been built and that had brought many men, eager for buffalo hides.

When the big herd reached summer pasture, it split up. Nosib's mother was again the leader of a small herd of about a hundred. Life had settled down to a daily routine. Every morning the bison grazed for a few hours. Near mid-day his mother led the rest to water in the valley. There they drank and rested during the heat of the day, chewing their cud and dozing. At evening they grazed again.

Nosib learned much that summer. He saw how the old bulls protected themselves from pestering insects. There was a swampy spot in the valley where they drank. One old bull would begin to scrape out a place with his horns. If he were not the strongest one in the herd, the boss bull would soon drive him away and resume the work himself. When the hole filled with water the bull would lie down in his puddle and work and roll his body round and round. In this way a wallow would be made, perhaps fifteen feet across and two feet deep. When finished wallowing, the bull would be covered with mud which caked on as it dried and which served as a fine a protection against flies.

One morning when Nosib was nearly a year old the herd was grazing under the brow of a hill. Nosib's mother got up to lead the way down to water. Suddenly there was a loud noise and Nosib saw his mother fall to the ground. He approached her and saw blood running out of her nose. He did not know why she lay so still, but he was vaguely alarmed. A minute later there was another noise and a second buffalo toppled over. Now many of the bison were aroused to the danger. But their leader was dead so they did nothing but stand and sniff at the two carcasses until another old cow began to lead the retreat. Again the noise, and the old cow plunged to her knees. In a hour sixty dead bison lay on the hillside, and the rest, including Nosib and some thirty others, had fled in a panic.

Once before, when he was small, Nosib and his mother had been caught away from the herd by wolves. His mother had gored one with her horns and then bellowed for help. Three bulls came to their rescue and frightened off the wolves while they made their way back to the herd. And another time, the herd had been frightened by some horsemen who suddenly rode among the bison and killed several before they could run away. But never had Nosib had such an experience as this awful still-hunt. The bison had not known what to run from. The still-hunter had lain concealed on the edge of the hill and had shot down every buffalo that began to lead the herd off.

Years went by and with the years the bison's enemies increased. The autumn after Nosib's mother had been killed he had been driven out of the herd by rival bulls. He joined another, and barely escaped the attack of another still-hunter. Everywhere he went it was the same story: hunters, guns and slaughter. In 1888 Nosib was an old bull. He and a few of his fellows had taken refuge on a secluded range in southern Canada. He was one of a thousand surviving buffaloes in the world. The rest of the millions, which ruled the plains when Nosib was born, were gone.

EDMUND COOKE, Guide-lecturer

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MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER SIX

NOVEMBER 5, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

MUSEUM STORIES
FOR
CHILDREN

SERIES VII

NUMBER SEVEN

NOVEMBER 12, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

You will find samples of crude oil, refined oils and petroleum products in Hall 36. You may also see there specimens of oil-bearing sand and a model of the first refinery built in this country.

D. C. DAVIES, Director

SUNSHINE AND OIL.

It is told that Joshua made the sun stand still. But that is no miracle when you think that every time we burn a gallon of gasoline we are, in a rather roundabout way, recalling a moment of sunshine that belongs to a time much longer ago than Joshua's. Joyriding in an automobile is just one way of basking in the warmth of a summer's day of a few million years ago. And, lest you think this is merely making idle riddles out of a commonplace, let us trace a gallon of gasoline back to its birthplace.

Before gasoline existed as a light, clear liquid it was part of the thick, dark fluid called crude oil or petroleum. We have to refine petroleum to get gasoline. This is done by heating the crude oil and condensing the vapors that boil off. There are many valuable substances contained in petroleum. They range all the way from the black solid called petroleum coke to the liquid, petroleum ether, which is so light that the heat of your hand makes it boil. The refining process is the way we separate these various substances so they can be put to their own special uses. When crude oil is heated the ether boils off first. Naptha comes off next, then gasoline, then light engine oils, then heavy lubricating greases and vaseline, then paraffin wax, and finally all that is left is a black solid resembling coke.

The word "petroleum" means rock oil. And that is a good name for it, since, as all of us know, it comes from the earth. It is found underground, stored in rock reservoirs. Sometimes these reservoirs are crevices between two layers of rock; and sometimes they are just beds of sand or porous stone in which the oil is lodged in the little spaces between the rock particles. Often, natural gas is found along with oil in pockets lying above. This gas has become separated from the oil in the same way that gasoline is separated in the refinery. Natural gas is the lightest, the lowest-boiling substance of all those contained in petroleum. The heat of the earth has been enough to boil it off from its mother liquor. A pocket of gas is like steam in a boiler; it exerts a pressure to be free. So it happens, sometimes, that when an oil pocket is tapped by a well, the gas pressure forces the oil up in a stream as high as the Buckingham fountain. Such a well is called a "gusher".

Oil is found all over the world in rock layers varying from very old ones to those recently formed. Where did it come from and how did it become buried so deep? To answer these questions we must examine both the rocks and the oil itself. Studying first the rocks which hold the oil, we discover that they are made of what was once loose material on the surface. The oil-bearing layers are sedimentary rocks of such types as sandstones, shales and limestones. They were formed from the shells and skeletons of animals,(in the case of limestones), or from the grains of older rocks which water and weather had crumbled away. Another thing these rocks tell us is that they were formed in water. Many were made in the sea, some in bodies of fresh water.

Next, examining the oil itself, we find that it has something in common with living matter, particularly vegetable matter. We have seen in the refinery that petroleum can be reduced to a black stuff resembling coke or charcoal. We know that gasoline, burning in the cylinders of an automobile, deposits the troublesome carbon. And we know, likewise, that wood and bones can be made into charcoal. So we decide that oil came from living matter which flourished when the rocks containing it were sediments on the earth's surface. The creatures whose remains drive our automobiles today were water plants,—and maybe water animals, too. When they died their rotting bodies became mixed with the mud of the bottom. Being buried under water and mud so that no air could reach them, they did not rot quite away as do the leaves on the ground. Their decay stopped with the formation of oil.

Plants, you know, must have sunshine to grow. The sun gives off heat and light which the plants absorb, capturing it in their woody tissues. All growth, all activity of living, moving things depends upon the plant's ability to store up the sun's energy. Now burning gasoline also gives off heat and light as it explodes and drives our motor cars. So, you see, the heat, the light, and the driving energy of exploding gasoline are nothing but sunshine that was drunk in by waving water plants of some bright days of long ago.

EDMUND COOKE, Guide-lecturer.

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NOVEMBER 19, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

The salmon, with several of its relatives, may be seen in Hall 18. It is placed among the group of "Chicago market fishes" because the fresh fish is brought here from the west coast, as well as from Lake Michigan where it has been artificially introduced.

D. C. DAVIES, Director

THE BIRTH AND DEATH OF A SALMON.

In the autumn, nests of salmon eggs lie on the sandy bottoms of the small headwater streams that drain into the Pacific ocean from San Francisco and Japan, north to Bering Straits. Perhaps you didn't think that fishes made nests. Know, then, that salmon do. Their nests are shallow depressions scraped in the sand. In them the mother salmon lays her eggs by the hundreds. In the fall when they are fresh they look like coral beads the size of peas.

Compared to a downy bird's nest under a June sky, the salmon's stone-lined, water-cooled incubator does not seem like a promising place to bring up a family. The water, in which the eggs are hatching, is fast approaching the freezing-point. Soon snow will fly. Yet here, under just these conditions, salmon are born year after year. That is the strange thing about these tiny pink marbles,— they hatch in cooling water. No mother's breast warms them, no father protects them. Incubated by winter chill and watched over only by the sun and stars, the baby salmon gets a frigid welcome into this world.

It may take six months or more for the salmon eggs to hatch. The length of time depends upon the temperature of the water. Newly laid, the eggs are translucent, but as time goes on cloudy shapes begin to form within, the eggs become opaque. If you could look inside one just before it hatches you would find the baby salmon curled up, head to tail, like a sleeping puppy.

The little new-born salmon, or fry, have to shift for themselves from the moment they are ushered into life. They have no parents to feed and protect them. But for the first six weeks or so the food problem is solved for them. They bring with them from the egg its yolk which they carry in a sac under their stomachs. In another way, however, this six-weeks bread-basket is a handicap. The burden of the thing hampers them in escaping from enemies. Consequently, by far the greater number of the salmon fry are eaten up before they get a chance to taste fish themselves. That is why the mother salmon lays hundreds of eggs. There is only one chance in several hundred that each one of her eggs will become a full-grown salmon.

All the salmon fry which survive the dangerous age continue to live in the mountain streams where they were born until they are about a year old. By this time the haunts of their birth become too small for them, so they drop down stream and swim out to sea. Here food is abundant and the salmon thrive and grow fat for three years or so. At the end of this period they are at the peak of life. They are vigorous and strong. Their flesh is charged with oil and becomes tinged with its well known salmon color. The jaws of the male become enlarged and hooked.

In the spring or early summer of their fourth year, the salmon are made restless by a strong urge to seek fresh water again. Wherever a river empties into the ocean the salmon in that region, sensing the fresh water, begin to swim toward its source. From the time they first set their noses against the river current they become blind to everything but their instinct to swim up until they reach headwater again. They stop eating. Indeed, among the changes that have taken place in their bodies are some that make it quite impossible for them to digest food. Their stomachs have shrunk so as to become useless. They will never eat again. Their one aim now is to get to the upper reaches of the streams they are in, and nothing short of death can stop them. When they encounter a falls or a cascade, the strong ones jump over it; the ones that missed the first jump try again and again until they either make it and go on their way, or die of exhaustion in the attempt. Rocks and snags bruise their bodies and tear their delicate fins. Men and animals kill them with tooth and claw, spear and net. Nothing daunted by fright or hurt they swim on and up toward their goal. In the Snake and Yukon rivers their journey may cover two thousand miles and consume the whole summer. In small streams they may travel only two thousand feet to a suitable place.

Arrived at their destination the salmon pair off and begin spawning. Selecting a spot on the sandy bottom the male fish scoops out a shallow nest. The female then lays her eggs which her partner fertilizes. But now, their purpose is accomplished. Nature has left them nothing else to live for. Their bodies are torn and exhausted. Their stomachs have lost their function. In this state they float downstream, tail foremost. All are overtaken by death in a short time.

EDMUND COOKE, Guide-lecturer.

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MUSEUM STORIES FOR CHILDREN

SERIES VII

NUMBER NINE

NOVEMBER 26, 1927

FIELD MUSEUM OF NATURAL HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

Scenes from the life of the Eskimo and the principal articles which he uses may be found in Hall 3.

D. C. DAVIES, Director

ESKIMO LIFE.

When the Algonkian Indians, who lived in the forests of Eastern North America, were asked about the people to the north of them, they called them "Eskimo," which in the Algonkian language, means "eaters of flesh." The name is a good one and well deserved, so perhaps it is just as well that it has clung to these northern Indians, despite the fact that it is not what they call themselves.

The Eskimos are flesh-eaters in the true sense of the term. All the year round they eat nothing but meat. In summer salmon and reindeer are their staple articles of diet; in winter, seal and walrus. Sometimes this meat is eaten raw—we might say almost "alive,"— for an animal is often eaten while the blood is yet warm. At other times the Eskimo wife prepares a pot of soup, made of melted sea-ice, blood, and big chunks of meat. This bill of fare would not tempt many American appetites, but the Eskimo relishes it because he has known nothing else. He has never tasted fruits, vegetables, or breadstuffs. The sterile arctic soil and the feeble arctic sun do not nourish the kind of plants which supply us with foods. He has no choice but to smack his lips over a crude diet which is all the country affords.

All the Eskimos earn their livings in the same way, and all have to work equally hard to keep their stomachs full and their bodies warm. Each family is a little community by itself. The Eskimo is his own hunter, carpenter, tool-maker, clothier, trader, and entertainer, too. Among us, one man makes one thing and trades with the world for the rest of his wants. But in Eskimo country hunting is the sole source of supply for almost everything a family uses. The animals which the Eskimo hunts provide not only his wardrobe and his bill of fare, but his bed, his heat, and a score of other necessities of life. He dresses from top to toe in skins, he sleeps on a bed of fur, his house is heated and lit by burning the fat of seal, walrus or whale in a stone lamp; and many of his weapons and tools are made of bone, ivory, and sinew.

In the spring and summer the arctic day is long. Here and there in sheltered valleys and coves the snow melts away, and grateful flowers and grasses flourish in the sun. In this season the Eskimos fish for salmon in the streams and hunt deer on the inland pastures. The salmon, at this time, run up the coast streams from the sea in great numbers. When busy fishing, the hungry Eskimo does not stop to cook his dinner. From time to time he eats a salmon, just as it is caught, and keeps on working to lay up a big supply of fish while they are running. Surplus fish are split, dried, and sledged back to the winter home near the sea. A large kill of deer is sometimes stored away in a "deer depot" at the approach of fall when the weather has become cold enough so that the meat will not spoil. The depot is just a large store of meat buried securely under a pile of rocks in order that the wolves may not raid it. The horns of the deer are placed, projecting upward, to serve as a marker.

The winter home is built of stone or caked snow depending upon whether it is a permanent village house or a temporary one made while on the march. Winter days are very short—within the Arctic circle, proper, the sun is not seen at all for six months. The weather is cold, stormy, and unfavorable for any but seal-hunting much of the time. Seal-hunting is not an active sport; it requires no tracking or chasing far from home. The Eskimo hunter simply takes his stand on the frozen ocean near a seal's breathing hole and waits for the animal to appear. Seals, you know, are air-breathing mammals like men and dogs. They live in the sea, but they cannot stay under water continuously as a fish does. Every twenty minutes or so they must come to the surface for a breath. In winter large areas of the ocean are frozen over in an unbroken sheet, except for the seals' breathing-holes here and there which the animals keep open. The Eskimo hunter spends the brief day beside one of these holes, waiting. When a seal appears, he throws his harpoon; or he may also take a chance by throwing his harpoon down the hole without seeing the seal. If he hits his mark, he then seizes the harpoon line and holds on for dear life until the animal is tired out.

Wintertime is often hunger-time in the Eskimo household. Seals do not always appear at the breathing-holes to reward the hunter's vigil. Famine is a not uncommon visitor to the struggling family. Occasionally, when starvation threatens, the Eskimos sacrifice their dogs in order to tide over the time between hunting successes.

EDMUND COOKE, Guide-lecturer.

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